

Koch, Kristine

From: POULSEN Mike <POULSEN.Mike@deq.state.or.us>
Sent: Tuesday, May 26, 2015 5:03 PM
To: Koch, Kristine
Cc: Allen, Elizabeth; MCCLINCY Matt
Subject: RE: TPH Fractions in PH Groundwater Data
Attachments: Tables 1&2 TPH Fraction HQs.xlsx; Table 3 TPH fractions BERA addition.docx

Kristine -

Per your request, as a follow-up to our May 21, 2015 email, we are including more supporting material regarding potential ecological risks from petroleum hydrocarbon fractions in groundwater that could reasonably discharge to surface water. Table 1 (Gasco) and Table 2 (Arco/BP) provide summaries of the groundwater concentrations and associated hazard quotients for the sites where groundwater samples were analyzed for petroleum hydrocarbon fractions. In addition to hazard quotients, the tables also include the calculated hazard index for each groundwater monitoring well. The more appropriate measure of harm to ecological aquatic receptors is the hazard index, because the adverse effects from TPH fractions are similar and additive. Also, DEQ considers total petroleum hydrocarbons a single substance for regulating ecological effects.

Table 3 is a summary of the lines of evidence for ecological harm from measured petroleum hydrocarbon fractions, following the format used in Table 11-3 of the BERA. For reference, we also repeat previous information in the BERA on calculated petroleum hydrocarbon fractions based on TPH concentrations. We believe the results support the conclusion that TPH fractions and TPH are contaminants of ecological significance.

If you have any questions, please call Matt or me. Thank you.

- Mike

-----Original Message-----

From: POULSEN Mike
Sent: Thursday, May 21, 2015 5:30 PM
To: 'Koch, Kristine'
Cc: Allen, Elizabeth; MCCLINCY Matt
Subject: RE: TPH Fractions in PH Groundwater Data

Kristine -

We may want to talk to make sure we are providing you with the key information that you need. In the interim, I can add some more supporting information for the aromatic fractions, referring to the criteria used in the BERA to identify the C10-12 TPH fraction as ecologically significant (BERA Table 11-5).

* Relatively high HQ in one or more media - The higher molecular weight aromatic fractions have HQs exceeding 100 in various monitoring wells, up to a maximum (for a single fraction) of 400.

* Potentially unacceptable risks over extensive areas - The contamination from the Gasco site covers a large area of the river. There is also contaminated groundwater associated with the Arco/BP site. TPH fractions were not analyzed in groundwater TPH plumes from other TPH sites (including bulk terminal sites), so we expect there may be additional areas of the river that are impacted by TPH fractions.

* Potentially unacceptable risks to multiple receptors - Similar to the aliphatic fraction, the higher molecular weight aromatic fractions have unacceptable risk to benthic macroinvertebrates, invertivorous and omnivorous fish, amphibians, and aquatic plants.

* Potentially unacceptable risks to multiple lines of evidence - Also similar to the aliphatic fraction, the aromatic fractions have other lines of evidence, such as benthic toxicity results.

The Gasco groundwater data was provided to us in a database. We evaluated the data and prepared the summary figures we included in the email. We understand that data tables will provide more meaningful support for our evaluation. We are in the process of preparing those tables, and will try to provide them by next Tuesday.

Please call me or Matt if you would like more clarification.

- Mike

-----Original Message-----

From: Koch, Kristine [mailto:Koch.Kristine@epa.gov]

Sent: Thursday, May 21, 2015 1:49 PM

To: MCCLINCY Matt; Allen, Elizabeth

Cc: POULSEN Mike

Subject: RE: TPH Fractions in PH Groundwater Data

Thanks Matt. For us to use this in the FS, we need for you to demonstrate how these particular fractions posed ecologically significant risks per the criteria described in the BERA. We also need the background calculations for the derivation of the HQs.

Thanks,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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-----Original Message-----

From: MCCLINCY Matt [mailto:MCCLINCY.Matt@deq.state.or.us]

Sent: Thursday, May 21, 2015 11:40 AM

To: Koch, Kristine; Allen, Elizabeth

Cc: poulsen.mike@deq.state.or.us

Subject: FW: TPH Fractions in PH Groundwater Data

Hi Kristine and Elizabeth,

Attached is the TPH fraction evaluation of upland groundwater TPH plume data. Thank you for your patience. Please let me or Mike Poulsen know if you have any questions.

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